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ABSTRACT

Because not all approaches to evaluating the achievement of elementary school students evaluate the same facets of development, a variety of evaluation devices must be used to assess learners intellectually, socially, emotionally, and physically. The following approaches are discussed as ways of student evaluation: (1) work samples; (2) checklists; (3) rating scales; (4) sociometric devices; (5) conferences with students; (6) diary entries; (7) anecdotal records; (8) teacher-made tests; (9) essay tests; (10) true-false test items; (11) multiple choice items; (12) matching items; (13) completion items; (14) standardized tests; and (15) self-evaluation by the teacher about teaching quality. Since a variety of approaches are used, different philosophies of education are encountered, including measurement-driven instruction, and problem-solving methods. In any case, teachers need quality, open-ended criteria to appraise student decisions. (Contains 39 references.) (SLD)

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EVALUATION OF PUPIL ACHIEVEMENT

There are many ways to assess learner achievement in the different curriculum areas of the elementary school. Not all approaches to evaluating pupil achievement evaluate in the same facets of development. For example, using sociometric devices evaluates learners in social development. It does not assess pupils in general intellectual development. A standardized achievement test evaluates pupils in academic achievement pertaining to different curriculum areas in the elementary school. It would not evaluate personal and social development of pupils. Thus, a variety of evaluation devices must be used to assess learners intellectually, socially, emotionally, and physically.

Using Work Samples of Pupils

A very effective way of assessing pupil achievement is through the saving of work samples of pupils. These samples can be placed in a folder for each child. The work products should be dated so that comparisons can be made between and among earlier work of pupils compared to later work. Thus, the teacher, parents, and the child can notice improvement over previous attempts in school work. If a fifth grade pupil, for example, has developed a written report on "Manufacturing in Great Britain" when a unit on that country is being studied, the final product can be placed in the child's folder with the date on it. Reports that are written later can also be dated. Thus,

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comparisons may be made of earlier attempts at writing with later efforts. Too frequently, the teacher has felt that pupils are not achieving satisfactorily until seeing objective evidence by examining work products.

If pupils are giving oral reports to the class, the reports can be tape-recorded. A date may be placed on the tape which is then stored. Later tapes on pupil reports can also be dated. The teacher, parents, and the child could listen to these tapes and notice if achievement is in evidence. The reports would be evaluated in terms of acceptable criteria. The objectives to be achieved in the oral reports should harmonize with the present achievement level of each child. Certainly, it is unwise teaching to expect that which pupils cannot achieve.

It would be good if more pupil products could be stored satisfactorily, than what is presently possible. For example, if pupils are studying a unit on "Toys Around the World," they should have ample opportunities to make accurate toys of selected nations around the world. The final products could be dated and stored. Comparisons can then be made of other constructed objects and items that pupils have completed. However, many elementary schools are overcrowded and lack the necessary space to store selected objects and items of what pupils have constructed.

Thus, work samples of pupils should be collected, dated, and stored after they have served their purpose in the teaching-learning situation. Cooperatively, those involved in evaluating pupil achievement may notice if progress is being made by learners when comparing present efforts with those of the past. Too frequently, the teacher is very close to

the child on a day-to-day basis and is not aware of the small gains learners are making in the different curriculum areas of the elementary school. By making comparisons of each pupil's achievement, earlier with later efforts, it can be noticed if a child is making progress.

Using the Checklist

Many teachers have successfully used checklists in evaluating pupil achievement. The teacher must determine which behaviors to write on the checklist. The teacher may forget what learners have achieved unless records are kept. Thus, different approaches in evaluation should be used. In recording results of the evaluation, it becomes important to notice patterns of learner achievement and behavior when comparisons are made from one evaluation to the next.

In the checklist the teacher needs to carefully evaluate if learners are realizing the desired goals which are stated in writing. Objective observation by the teacher is necessary to evaluate pupil achievement in terms of the standards written on the checklist.

The following standards could be written on a checklist; the teacher could check the area or areas pupils are weak in:

Name of Pupil.....Date.....

1. The pupil presents ideas clearly when giving an oral report.
2. More information needs to be obtained to substantiate ideas presented in the oral report.
3. Increased guidance is needed in organizing ideas for the report.
4. Audio-visual aids should be used to capture listener interest.

5. The pupil has distracting mannerisms when presenting the oral report.

The above criteria could be written so that little or no interpretation exists as to the meaning of these guidelines. It is important for the teacher to emphasize only those objectives which pupils can achieve.

The teacher might make comparisons of checklist results from earlier to later observations. Feelings of teachers change when using the checklist at different intervals to assess pupil achievement. Being aware of the fact that feelings change when evaluating pupils at different intervals will assist the teacher in realizing that the checklist has its weaknesses as an evaluation instrument. This device should be used along with others to evaluate learner progress.

Rating Scales

An evaluation device that is closely related to the checklist approach is the rating scale. The teacher should carefully select those behaviors pupils will be rated on. A five-point scale may be used in the evaluation such as giving a pupil a five, four, three, two, or one rating on each behavior evaluated. The categories of "Very good," "Good," "Average," "Below average," and "Poor" can also be utilized. Each child should be evaluated in terms of what he/she can reasonably achieve. A learner should not be compared with others since unfair comparison can be made when one child is compared with another child. Pupils differ from each other in capacity and achievement. It is only

normal that some children achieve at a more rapid rate as compared to other learners.

The following is given as an example in listing behaviors and indicating ratings that can be given to pupils:

	Very Good	Good	Average	Below Average	Poor
The child gets along well with others on a committee.					
The child does his/her share of the work.					
The child uses reference sources well.					
Information is evaluated carefully.					

The above categories pertain to having children work on committees. Behaviors can be listed which would relate to many facets of pupil achievement such as in giving oral reports, participating in teacher-pupil planning, and doing a research project.

The teacher needs to be aware that perceptions of a child's behavior will not always be the same when using the rating scale. Feelings of a given teacher change from time to time as the rating scale is used as an evaluation device.

Sociometric Device

The sociometric device may be used in evaluating pupil achievement in the area of social development. This procedure does not assess learners in intellectual and physical development. The teacher should

use the sociometric device at justifiable intervals during a given school year. The reason for utilizing this procedure at various intervals during a given school year is that pupils' attitudes toward each other change. Two pupils may be very close friends until a disagreement occurs which results in changes of preferences as far as friendships are concerned. Friendships might also be quite lasting in duration.

The teacher may ask the following questions of pupils:

1. If you had a chance to select three pupils to work on a committee with you in preparing a report pertaining to the unit now being studied in social studies, who would be your first choice, second choice, and third choice?

2. If you could pick three children in learning to play a new game who would be your first choice, second choice, and third choice?

Pupils write their responses to the above questions on paper. They need to have complete assurance that the completed information would be held confidential by the teacher. The teacher can use the acquired information in developing committees for pupils to be involved in. The teacher must realize that pupils' feelings toward others change. Careful attention should be given to identify those pupils who have no friends, or are on the fringe area of having friends. These pupils must be given assistance in becoming accepted better by other children in a class. Perhaps, the child who is an isolate or on the fringe area of

being an isolate can best function on a committee where other members are highly accepting.

Conferences to Evaluate Pupil Achievement

It is of utmost importance for teachers to get to know their pupils well. This information must be used to improve teaching-learning situations. The teacher should take time to have conferences with each pupil in the class. It is important to set aside, perhaps, five minutes of time during each school day to have conferences. No doubt, in most cases then, each pupil in a class could have a conference with the teacher before a month of school has elapsed.

The teacher should prepare well for the conference in terms of possible questions to discuss with the child. This does not mean that the teacher will dominate the conference. Rather, the teacher needs to be a good listener to each pupil's questions, comments, and responses. The teacher, however, must be well prepared in terms of providing leadership and direction when conducting conferences with pupils.

The teacher should record observations made during the conference. This needs to be done after the conference has been completed. Comparisons can be made for each pupil then of observations made of earlier conferences with those conducted later.

An atmosphere of freedom to express ideas on the part of each pupil should be inherent when conferences are conducted. The teacher will not get valuable data from a child to be used in teaching if a rigid, formal atmosphere exists during the time a conference is conducted. If the pupil feels he/she must exhibit behavior which the teacher desires

during the conference, the time spent in using conferences as an evaluation technique is largely wasted.

Thus, the teacher must strive to have good rapport with each child so that conferences held can be successful. Good teachers are interested in each child's welfare and achievement. A teacher definitely should not threaten a child for exhibiting negative behavior during the time a conference is held. If this is done, a child will not reveal thoughts, feelings, and beliefs to the teacher.

Parent-teacher conferences may also be an excellent way to evaluate pupil achievement. Parents generally hold their children in high esteem and want the best for them. They definitely should be involved in planning for the welfare of their children. Pupils learn much from parents during the pre-school and public school years. Learners spend much time with their parents and the resultant effects are important. There are certain guidelines that teachers should follow in conducting parent-teacher conferences.

1. The teacher should listen very carefully to comments made by parents when conferences are conducted. Parents have goals which they want their children to achieve. These goals could be realistic or unrealistic. Parents also reveal feelings that they have toward their children.
2. It is good to have samples of pupil's work to show to parents. Parents might then ask questions over their child's achievement when viewing these products as well as over general achievement

in the elementary school. The classroom teacher needs to be well prepared prior to conducting a parent-teacher conference.

3. The teacher definitely should not criticize remarks made by parents during a conference. If remarks by parents are criticized, hostile feelings may result during the time the conference is conducted. Or, parents, may not reveal their feelings during a conference.
4. It is very important that parents and the teacher make decisions cooperatively which help each child to achieve to the highest potential.
5. Decisions made cooperatively pertaining to the welfare of a child should not be used as a club or lever. For example, the teacher and/or parents can place pressures on pupils which definitely have detrimental affects.

Diary Entries

Individual pupils or a committee of learners can record on a daily basis major generalizations that were developed from various units of study. If pupils are studying a unit on astronomy, records can be kept on a daily basis of main conclusions achieved. The teacher may evaluate if pupils are gaining important, relevant understandings. All pupils in a class should have ample opportunities to be actively involved in writing the diary entries on a daily basis. Illustrations may be drawn relating directly to these written entries. Pictures could be collected which assist to understand the contents of the diary entries in a more meaningful way.

Anecdotal Records

Teachers need to gather much information pertaining to each child's growth and development. The quality of teaching should improve if knowledge about the growth and development of each child is used in teaching. Observations made by the teacher should be recorded periodically; otherwise these observations can be forgotten or become hazy in the mind of the teacher.

Before writing anecdotal records, the teacher should make careful observations of pupil behavior. The teacher then needs to record exactly what was observed. A representative random sample of each pupil's behavior should be recorded at intervals. Thus, the teacher ultimately observes a pattern of behavior of each pupil after having studied and analyzed the anecdotal records.

A word of caution needs to be given pertaining to the writing and using of anecdotal records. The teacher must record exactly what was observed and not use loaded words. Words such as "troublemaker," "delinquent," "lazy," "indifferent," and "dumb bell" do not describe pupil behavior accurately. Infrequent records of observation do not give an overview of a child's behavior. Pupils behave differently under the guidance of diverse teachers. For example, teacher A may have considerable difficulty in working with a specific child. Next year, teacher B finds this same pupil to be a delightful person.

Teacher-made Tests

It is important for teachers to evaluate pupil achievement in terms of objectives. These objectives may be developed cooperatively between the teacher and pupils. The teacher may write test items on the developmental level of pupils to determine if the objectives have been achieved.

Teacher-made tests should assist in determining what learners have and have not learned. That which was not learned provides the teacher with ample opportunities to utilize additional learning activities for pupils which assist in achieving needed understandings, attitudes, and skills objectives. Thus, the teacher is diagnosing pupils' strengths and weaknesses when using teacher-made tests.

Writing Essay Items

The teacher may write essay items in evaluating learner achievement in the elementary school. Essay items should only be utilized in evaluating learner achievement if they assist in determining if pupils have achieved objectives. The items written should be on the understanding level of pupils. Learners must have an adequately developed writing vocabulary in order to respond in a proficient manner to essay items.

The teacher must write essay items which cover content taught during a unit or part of a unit. It is of utmost importance that essay items are valid. Criticism has been made of the subjectivity factor involved in grading responses pupils make to questions on an essay test.

Subjectivity can be greatly minimized if the items are delimited so that more precision is required when learners make responses. The following essay item pertaining to a unit on Great Britain is too vague and needs to be delimited: Discuss life in Great Britain. Pupils would not know what facet of life in Great Britain to discuss in writing. Instead, the teacher needs to be more specific in terms of desired learners' responses such as in the following essay item: List in writing four leading farm crops grown in Great Britain and tell how each is produced. Essay tests should be long enough so that pupils might exhibit a random sample of what has been achieved during a specific interval of instruction. They should not be excessively lengthy whereby pupils become tired and lose interest in the ongoing learning activity involving evaluation. Subjectivity in grading essay items can be greatly minimized by writing out answers to questions at the time the test items are written. Credit must be given to pupils' responses if they are correct and yet do not conform to the teacher's original key for grading the essay items. The teacher should evaluate all learners' responses to essay item one before evaluating essay item number two and so on.

One major advantage in giving essay tests is that the teacher may notice not only the understandings that pupils have gained but also the ability to organize information with proper sequence. The teacher may also evaluate pupil achievement in the mechanics of writing such as spelling, handwriting, usage, and punctuation. The mechanics of writing should be evaluated separately from understandings that pupils have gained.

Writing True-False Items

The teacher can write true-false items to evaluate pupil achievement. The true-false test should be long enough to measure what pupils have achieved. The test, however, should not be too lengthy whereby fatigue sets in on the part of the child. True-false items should be clearly written so that they are on the understanding level of the child who is taking the test. Vague items should be omitted from a true-false test. Items that lack clarity on a true-false test do not measure learner achievement. Guessing generally results if test items are not written clearly.

When writing true-false items, the teacher should not use statements that come directly from a textbook. Thus, rote learning would not be emphasized when assessing learner achievement.

Specific determiners should not be used when writing true-false items. Thus, words such as "all," "never," "none," and other similar words would indicate the statement is false. Words which are confusing to learners should also not be utilized when writing true-false items. The teacher should want to determine what pupils have or have not learned rather than confusing learners. Clarity in writing test items is salient.

Generally, there should be an equal number of test items which are true as compared to those which are false. This is important in not being biased if a pupil would answer "true" to all items and the teacher having written most true-false statements which actually are true.

Answers to true-false items should not follow a pattern such as every other item being "false" or every other item being "true."

When writing true-false items, the teacher must be aware of factual statements versus opinions. In other words, if statements on a true-false test deal with opinions held by the teacher or other persons, the items should mention whose opinions are being considered. Pupils may become confused when responding to true-false items if they are to respond to opinions as if these are statements which can be verified by using reliable reference sources.

Multiple Choice Items

The teacher may wish to write multiple-choice items in noticing if learners are achieving objectives. Generally, three or four alternatives are written as possible responses from which to select. Sometimes, responses to a multiple choice item are ridiculous to the point where the learner senses that only one response can be right; this can be determined without having learned anything about the unit being considered in the evaluation. Each alternative should be plausible. Thus, each response must be considered by the learner in determining which would be correct. If only two responses are reasonable, the test item becomes more like a true-false rather than a multiple choice item.

Clues should not be given in the stem of the multiple choice item as to which is the correct response. The following multiple-choice item indicates which would be the correct response without the learner needing any knowledge basically in selecting the correct answer:

Hawaii is an
(a) bay.
(b) peninsula.
(c) cape.
(d) island.

The only correct response would be the following: Hawaii is an island.

Responses in a multiple choice item should be somewhat equivalent in length so that no clues are given as to which is the correct answer. Consider the following multiple choice item:

The Middle East
(a) consists largely of countries made up of Israel and the Arab World.
(b) is an island.
(c) is a part of the United States.
(d) is unimportant in world happenings.

In the above test item, response "a" is considerably longer than the other responses. This may give a clue to the student as to which is the correct response.

Too frequently, multiple choice items have evaluated learner achievement in factual knowledge or recall of information. The student should also be evaluated in the areas of problem solving, creative thinking, and critical thinking when responding to multiple choice items.

Matching Items

Matching items can be used to evaluate pupil achievement in terms of stated objectives. One column should have more items than the second column in a matching test as is true of the following example:

Presidents of the United States

A. Gerald Ford	.... famous General of World War II
B. Lyndon Johnson	.... President during World War II
C. John F. Kennedy	.... former senator from Massachusetts
D. Dwight Eisenhower	
E. Franklin D. Roosevelt	.... most recent President of the United States

The student cannot guess the remaining matchings through the process of elimination when more items exist in one column as compared to the second column. For example, if a pupil has matched correctly all items except one, he/she can determine the final matching merely through the process of elimination if columns one and two have the same number of items. In the above listed matching test on the "Presidents of the United States," pupils write in the correct letter from the response alternatives of the first column to the blank space in front of the items of the second column.

In writing matching items, the teacher needs to think of homogeneity in terms of content. For example, the following matching test items would pertain to homogeneous content:

Colonies in the New World

A. Massachusetts Bay	.... begun by the Pilgrims
B. Plymouth Rock	.... headed by John Smith
C. Jamestown	.... started by Puritains
D. Georgia	.... led by Thomas Hooker
E. Connecticut	

The matching items above come under the category of "Colonies in the New World." Thus, the items are homogeneous in terms of the content. If an item had been put in dealing with a recent president of the United States, a generalization could be realized pertaining to unrelated content being a part of the matching test.

Teachers need to be aware of having an excessively large number of items in a matching test. Lengthy tests make it difficult for learners to wade through two columns of information when attempting to match items in one with items in the second column. The number of items put in a matching test depends upon a child's present level of achievement. Fatigue and tiredness set in with a test that is too lengthy. The test items should be on the reading level of learners. The teacher in a matching test is attempting to determine what pupils have learned rather than evaluating the reading levels of individual pupils.

Pupils experience much difficulty in taking a matching test if both columns contain lengthy phrases or sentences. One of the two columns as a minimum must contain short phrases or words.

It is important that the teacher refrain from writing matching test items where the correct answer is obvious. In the following example, one item is quite obvious in terms of correctness of response:

A.	President of the United	 1917
	States during World War I	.... Woodrow Wilson
B.	Year of entry of the United	.... Great Britain
	States into World War I	.... John J. Pershing

C. Famous American General
during World War I

D. Was an ally of the United
States during World War I

In the above example, it is quite obvious that "Year of entry of the United States into World War I" matches with "1917." There is no other rational matching that would be correct.

Completion Items

Pupil achievement in terms of objectives can be evaluated with the use of completion items. Selected standards must be adhered to when writing completion test items.

The teacher should write items which are meaningful to learners. Completion items have been written which contain too many blank spaces; thus, pupils do not understand what is wanted in terms of responses. Consider the following example.

..... and ..... is the ..... of .....

There, of course, are too many blank spaces for learners to attach meaning to what is wanted in terms of responses. The teacher must want to evaluate learner progress rather than the pupil's ability to guess at vague test items.

The teacher should develop a key as to the correct response(s) for each item as the completion test is being developed. As the responses of each pupil are being checked, the key can be utilized. The evaluator also must be aware of additional correct answers that pupils may write other than those listed in the key.

Answers to completion items can be written on the right hand side of the page, where appropriate blank spaces are provided. This saves time in scoring completion items.

Completion items should assess pupils on important concepts and generalizations which have been achieved. The mechanics of writing, such as spelling, should be evaluated separately from the information which is supplied by the pupil in completion items. Generally, textbook wording should not be utilized by the teacher when writing completion items. Pupils should reveal understandings developed rather than recall of factual information.

Using Standardized Tests

The teacher can also evaluate pupil achievement through the use of standardized tests. Standardized tests generally are administered once or twice during a given school year. They can give teachers valuable information in terms of how a given child in class compares with the norms of the standardized test. Standardized tests should adhere to the criteria of being valid and reliable. For a test to be valid, it should cover what has been taught. It would be ridiculous, for example, to have items in a unit test in social studies which would cover technical terms in music. This would especially be true if these terms had not been taught in the unit of study. The teacher needs to be certain that what is being evaluated in terms of pupil achievement has been taught in the unit. It is difficult, however, for the teacher to know precisely what should be taught in different units of study so that the contents of a standardized test are valid. Thus, validity is lacking in degrees

when pupils are engaged in the taking of a standardized test. How valid any standardized achievement test is will depend upon the consistency of its objectives with those of the participating elementary school. Too frequently, teachers may have taught isolated facts when pupils are engaged in ongoing learning activities, whereas the standardized test being utilized evaluates learners in terms of problem-solving skills and abilities. The opposite situation could prevail also where the teacher emphasized the importance of problem solving, and yet the standardized achievement tests assesses pupils in terms of facts achieved.

Reliability is also important when selecting standardized achievement tests. When standardized tests are reliable, pupil results from having taken the test are consistent. For example, if 1,000 pupils have completed form A of a standardized test and then a few days later take form B under comparable circumstances, the results should be quite consistent in terms of grade equivalency or percentile rank. A standardized test, for example, would not be reliable if pupils in the above named group averaged 5.6 grade equivalency from form A and 3.1 grade equivalency from form B. The question then arises as to where are these pupils in achievement pertaining to different curriculum areas in the elementary school. However, if these same pupils averaged a 5.5 grade level equivalency on form A and a 5.6 or 5.7 grade equivalency for form B, one could say that the results were quite consistent providing that consistency of results were also inherent on the part of each child's test results. Teachers should also think of the concept of reliability when developing teacher-made tests.

Self Evaluation by the Teacher

One of the best ways to evaluate pupil achievement is for the teacher to assess his own strengths and weaknesses. There are numerous questions the teacher can ask of the quality of his or her own teaching.

1. Did I try to get pupils interested in ongoing learning activities?
2. Did it appear that individual differences were provided for?
3. Did pupils perceive a purpose or purposes for learning, or were learners forced to learn that which lacked purpose?
4. Were a variety of activities used in teaching so that individual differences among learners were provided for?
5. Were pupils given adequate chances to develop major generalizations inductively?
6. Did it appear that learners were motivated in desiring to achieve stated objectives?
7. Were diagnostic approaches utilized in determining pupil strengths and weaknesses in ongoing units of study?

Philosophy of Measurement and Evaluation

Diverse approaches are available to classroom teachers to measure and evaluate student achievement. Since a variety of procedures are in evidence, different philosophies are available in the appraisal arena. A quality teacher does a good job of appraising student attainment. With excellence in the appraisal arena in evidence, teachers are in a

better procedure to sequence learning opportunities for students. Each student then has improved opportunities to experience sequential learning activities.

Philosophical Schools of Thought

Measurement Driven Instruction (MDI) has rather strong followers among educators. MDI may be in evidence with state mandated objectives and tests, Instructional Management Systems (IMS), and mastery learning. Each of these appraisal procedures stresses the utilization of precise objectives. These ends are specific. After instruction, it can be measured if a student has/has not attained any measurably stated objective.

Objectives here are selected in terms of ascertaining if a student has/has not achieved an objective. Thus objectives are accepted for teaching based on their being stated in measurable, observable terms. That which is subjective and internal to the student is not capable of being observed or measured.

MDI objectives are predetermined. They have been written prior to instruction. No student input is emphasized in developing the curriculum with MDI. Instuctor(s) and/or test writers are in the best position to write precise, measurably stated objectives with tests that align with the written ends. The alignment of the tests with the objectives emphasizes the significance of validity. Thus learning opportunities chosen by instructors assist students to attain the specific objectives. Each student is then measured in achievement against the precise ends stressed in teaching-learning situations. If the test measures consist-

ently when test-retest or split-half reliability is utilized, the concept of being reliable may be attached to the measurement instrument. For tests to emphasize quality in their construction, validity and reliability as measurement concepts need to be in emphasis.

MDI, as a philosophy of measurement and evaluation, does not emphasize:

1. the utilization of broad, general objectives in teaching-learning situations.

2. student-teacher planning of objectives, learning activities, and appraisal procedures.

3. students sequencing their own activities and experiences in a psychological curriculum. MDI advocates a logical curriculum in that instructors order objectives sequentially for student attainment.

4. instruction pertaining to that which cannot be measured such as internal interests, purposes, and meanings that students develop.

5. an activity centered curriculum, such as students engaging in construction and processing activities.

Problem Solving and the Student

Flexible steps in problem solving procedures in teaching-learning are open-ended, not absolute nor precise. A model for students with teacher guidance engaging in problem solving may be the following:

1. identification and clarification of the problem.

2. selection and appraisal of information needed to solve the problem.

3. development of a related hypothesis.

4. tests made of the hypothesis.

5. revision and modification of the hypothesis, if necessary.

Problem solving methods of instruction emphasize students with teacher guidance identifying life-like problems. These problems are relevant in society and are not predetermined for students to solve.

Student curiosity, interest, and purpose need to be developed so that problems/questions are identified. Lecture/heavy use of explanations in teaching do not suffice. Rather, inductive methods of teaching are advocated, whereby students select a problem and utilize diverse reference sources to select subject matter to solve the problem. Subject matter is not set out in advance for student acquisition, but rather is instrumental for problem solving. From a stimulating learning environment, the learner identifies one or more problems. From specific data, the student arrives at a generalization to tentatively solve the problem(s). The generalization is a hypothesis and subject to testing in a life-like situation.

Problem solving methods do not stress:

1. measuring each specific step of attainment in flexible problem solving. Much of what transpires in problem solving occurs internally within the learner.
2. a predetermined curriculum for students. Rather problems emerge as ongoing learning opportunities are experienced.
3. teachers continually making assignments for students such as using textbooks and workbooks as learning activities.

4. a deductive procedure in teaching. With deductions, subject matter moves from the teacher to students.
5. a highly structured curriculum which is carefully sequenced by teachers and other educators.

Student achievement in problem solving may be evaluated with teacher observation. Paper-pencil tests, be they norm referenced or criterion-referenced, do not measure student skills in problem solving. Rather, in a contextual situation, students with teacher guidance identify and solve problems. Realistic, life-like situations provide opportunities for student problem solving situations. Evaluation of student progress is flexible and open-ended. Teacher observation and student self evaluation may be utilized to appraise the quality of processes and procedures utilized by learners in problem solving situations.

Individual decision-making presents a third model in the philosophy of evaluation. A learning centers approach might be emphasized. An adequate number of tasks for the diverse centers needs to be in evidence. The student sequences his/her own tasks. Those tasks not possessing purpose and interest may be omitted. The student may select problem solving, as well as other kinds of tasks. The student needs to be able to choose and complete ordered learning activities. Teachers need to evaluate each student on his/her abilities to select quality tasks sequentially. The tasks are perceived by students to be interesting, meaningful, as well as possess purpose. Subjective criteria are then utilized in the evaluation process.

In addition to a learning centers approach, individual decision-making may further be stressed in individualized reading. Regardless of

the academic areas involved, students may utilize self-selected reading material, rather than the use of basal textbooks. Or, self-selected reading materials might supplement the basals. If library books are chosen by the student, the teacher needs to appraise a learner's ability to select and read the complete library book. After the library book has been read, the student and the teacher need to have a short conference to assess comprehension. A few salient comprehension questions may be asked of the learner. Thus from a variety of library books possessing diverse content and being on different reading levels, the student selects sequential library books to read.

Individual decision-making philosophies of instruction do not:

1. stress a teacher developed curriculum, consisting of objectives, learning opportunities, and appraisal procedures.
2. advocate a logical curriculum in which the teacher determines sequentially learning opportunities for students.
3. emphasize a highly structured curriculum. With student decision-making, openness and flexibility are key concepts in curriculum development.
4. require a textbook/workbook philosophy of instruction. Rather, a variety of instructional media to meet student interests and purposes are salient.
5. Propose predetermined objectives for learner attainment. Instead, goals emerge as students with teacher guidance pursue learning opportunities involving choice.

Student achievement then is evaluated in terms of quality decisions made, sequential tasks completed stressing worthwhile experiences, as well as learner motivation in achieving, growing, and developing.

In Conclusion

Diverse philosophies are in evidence pertaining to measuring and evaluating learner progress.

1. Measurement driven instruction advocates the utilization of precise objectives in teaching-learning situations. Alignment of learning activities and appraisal procedures with the objectives is vital. A highly structured curriculum is then in evidence. Student progress is measured in terms of attaining the precise ends. Hopefully, adequate opportunities are provided for students to identify and solve problems.

2. Problem solving methods harmonize with that which exists in society. In the societal arena, persons identify and solve problems, be they major or minor in nature. Teacher observations emphasizing quality flexible criteria are necessary to evaluate learner progress in problem solving.

3. Pupils individually make choices in school be it problem solving or other types of activities and experiences. Quality, open ended criteria need to be utilized by the teacher to appraise decisions made by students.

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